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MEMORANDUM FOR: Assistant Deputy Director for Intelligence

SUBJECT : Request for Approval of Change-in-Scope to Contract  
 [redacted] Task 10, with the [redacted]  
 [redacted] from FY-1970  
 R&D Funds

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1. This memorandum requests approval for the commitment of R&D funds for a change-in-scope to contract [redacted] task 10. The specific request is stated in paragraph 7.

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2. NPIC currently has a cost-plus-fixed-fee contract with [redacted] to fabricate a Target Indexing Device (TID). This is a part of the Automatic Target Recognition Program, Phase IV effort totaling [redacted]. The TID will provide NPIC with the capability of rapidly and automatically scanning [redacted] film, specifying those targets that are cloud covered or cloud free. Also, when operating in the general analysis mode, the device will permit an accurate determination of the percent of cloud cover on an area basis.

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3. An integral part of the TID is a [redacted] DDP 516 computer which serves as the "controller" of the system and also makes the statistical yes-no decisions concerning cloud cover. This computer requires tape inputs of ephemeris data and provides tape outputs of cloud cover decisions over specific targets or areas. When the program was initiated, there was an element of technical risk as to the degree of success of the TID. Therefore, a relatively inexpensive paper tape unit was purchased in order to minimize the initial cost of checking out the system, with conversion to magnetic tape delayed until a later date. Since then, the [redacted] imaging characteristics have been further defined, it has become apparent that the paper tape units are too slow to deal with the complex inputs involved. In addition, proven decision accuracies and the rate of technical achievement on the equipment have virtually eliminated the previous risk and it now seems prudent to convert to magnetic tape immediately. Conversion at this time will obviate the significant programming costs that a retrofit would entail. Paper tape inputs and outputs for this application have several operational disadvantages as compared to magnetic tape:

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Declass Review  
by NIMA/DOD

GROUP 1  
Excluded from automatic  
downgrading and  
declassification

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10, with the [ ]  
Amounting to [ ] from FY-1970 R&D Funds

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a. Operational requirements dictate a film speed of 100 f.p.m. for the TID. Because of the volume of data required for making statistical decisions, the maximum speed obtainable with the paper tape unit is approximately 20 f.p.m.

b. Because paper tape units have limited reading and writing speed and capacity, the cloud cover decision in the target indexing mode cannot be stored with the target identification number in one operation, even at the unacceptable rate of 20 ft/min. Consequently, a second operation is required to provide a new tape containing both the cloud cover decisions and the target number. With the rapid reading and writing rates of magnetic tapes, both the decisions and target numbers and/or coordinates could be recorded simultaneously as the film is processed, eliminating the need for a second operation. Also, the decisions would be immediately available for data analysis.

c. If the TID retains the paper tape unit, all inputs to the TID from the computer facility will have to be converted from magnetic tape to paper tape. Likewise, all paper tape outputs of the TID will have to be converted to magnetic tape so that existing computer facilities at NPIC can be utilized.

4. RED has investigated the types and costs of magnetic tape units that will eliminate the disadvantages of the paper tape unit and still remain compatible with the existing computer facilities. It is recommended that two [ ] 516-4142, seven track units (including controller) be purchased. These magnetic tape units are standard equipment with no technical risks involved.

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5. As the primary contractor on the TID, [ ] would be the logical one to acquire and integrate the magnetic tape units and controller. [ ] is the only contractor that can perform the above operation in time to meet the scheduled delivery date (September 1970) for the completed TID.

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6. The security classification will be the same as the original contract. The association is SECRET, the title is UNCLASSIFIED, and the work is SECRET.

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Task 10, with the [redacted]  
Amounting to [redacted] from FY-1970 R&D Funds

7. It is requested that approval be granted for a change-in-scope to contract [redacted] in an amount not to exceed [redacted] and to be charged against FY-1970 funds.

[redacted]  
ARTHUR C. LUNDAHL

Director

National Photographic Interpretation Center

Attachments:

1. Proposal
2. Form 242

APPROVED:

[redacted]  
Assistant Deputy Director for Intelligence

5 MAY 1970

Date

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